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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte HARI HARA KUMAR VENKATACHALAM

Appeal 2009-003898¹
Application 10/672,316
Technology Center 2600

Decided: March 3, 2010

Before JOHN C. MARTIN, ROBERT E. NAPPI, and
CARL W. WHITEHEAD, JR., *Administrative Patent Judges*.

MARTIN, *Administrative Patent Judge*.

DECISION ON APPEAL

¹ The real party in interest is the inventor, Hari Hara Kumar Venkatachalam.

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STATEMENT OF THE CASE

This is an appeal under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 1 and 4-22, which are all of the pending claims.

We have jurisdiction under 35 U.S.C. § 6(b). We affirm-in-part.

A. The principal issue

The principal issue before us is whether the references disclose a "projection unit," as recited in the independent claims.

B. Appellant's disclosure

Appellant's invention is a pair of "data-specs," which is a projection/display unit that is integrated with a pair of spectacles (eye-glasses). Specification ¶ 0013.²

Appellant's Figures 1-1 and 1-2 are reproduced below.

² Because the Application as filed contains no line or paragraph numbers, references herein to Appellant's Specification are to the paragraph numbers of corresponding Patent Application Publication 2004/0061664 A1.

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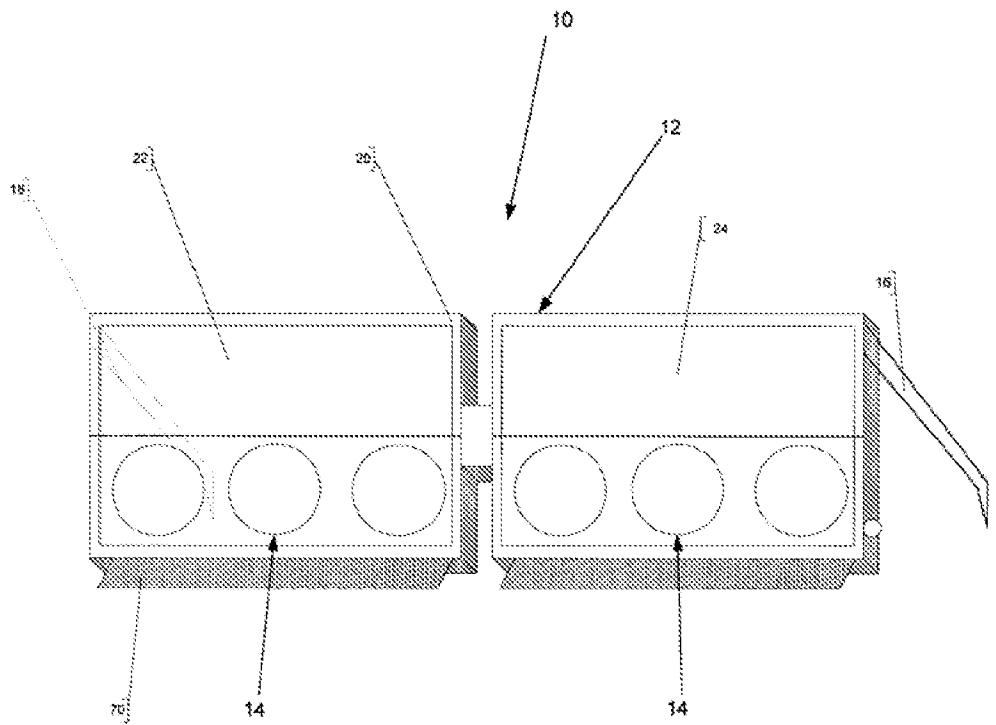


FIG. 1-1

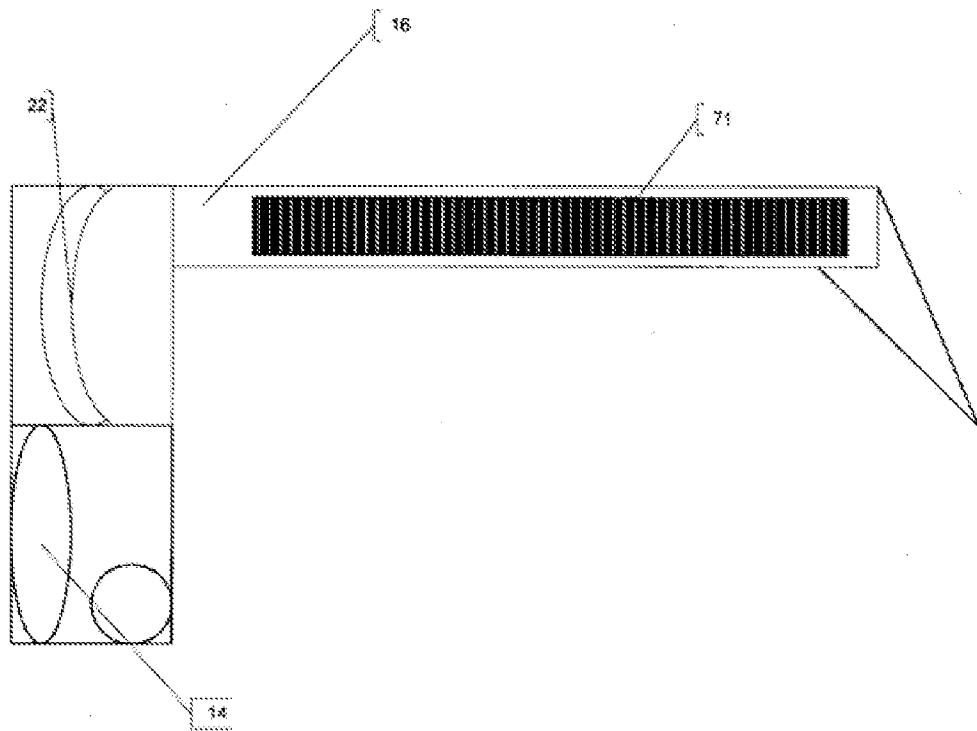


FIG. 1-2

Figures 1-1 and 1-2 are front and side views of an embodiment of Appellant's data-specs. *Id.* ¶¶ 0007, 0008.

As shown in these figures, the data-specs 10 include spectacles 12 and projection units 14. *Id.* ¶ 0014. Spectacles 14 include a first temple 16, a second temple 18, a frame 20, and first and second lenses 22 and 24 (*id.*), which can be prescription lenses. *Id.* ¶ 0016.

Figure 1-3 is reproduced below.

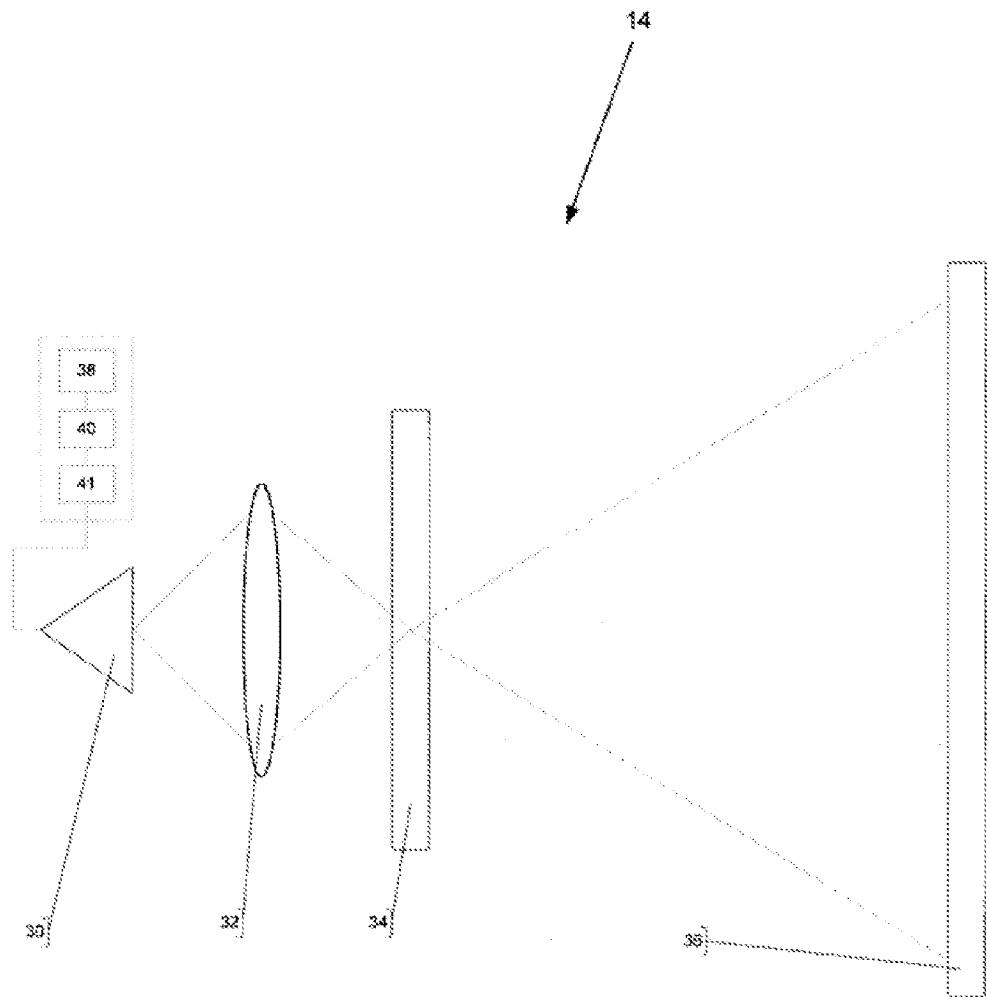


FIG. 1-3

Figure 1-3 is a simplified block diagram showing a projection unit of the data-specs shown in Figures 1-1 and 1-2. *Id.* ¶ 0009. The Specification explains that data-specs 10 can be used to display video (e.g., from a television set) or data (e.g., from a computer) “aimed at a *virtual screen* (such as 36 shown in FIG. 1-3), which is either a *clear space* in front of the

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user or a wall.” *Id.* ¶ 0015 (emphasis added). In discussing Figure 1-3, the Specification more particularly explains that

projection unit 14 includes a receiver 30, which can be a Cathode Ray Tube (CRT) or Liquid Crystal Display (LCD), a double convex lens 32 and an image-forming display panel 34. Receiver 30 is capable of receiving information from a computer or television through wired or wireless means. In this case, called a front or transmissive projection, the light emanates from the receiver 30, converges onto image-forming display panel 34 through the lens 32. Image-forming display panel 34, in turn, projects the light onto virtual screen 36.

Id. ¶ 0017 (emphasis omitted).

B. The claims

The independent claims before us are claims 1 and 18, of which claim 1 reads:

1. A pair of data-specs comprising:

a pair of spectacles adapted to be worn on the face of a person, the pair of spectacles having a first lens and a second lens; and

a projection unit coupled to the spectacles, the projection unit adapted to display data received from an information source,

wherein the first lens and the second lens are independent of the projection unit, and wherein the

projection application-unit is structurally and functionally independent, and

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wherein the data that the projection unit is adapted to
display includes data from a computer or video
from a television set.

Claims App. (Br. 8).

C. The references

The Examiner relies on the following references:³

Schoolman	US 5,281,957	Jan. 25, 1994
Kato et al. (“Kato”)	US 5,497,170	Mar. 5, 1996
Barkan et al. (“Barkan”)	US 5,656,804	Aug. 12, 1997
Preston	US 6,094,283	July 25, 2000
Mann	US 6,307,526 B1	Oct. 23, 2001
Yasukawa et al. (“Yasukawa”)	US 6,320,559 B1	Nov. 20, 2001

D. The rejections⁴

Claims 1, 5, 6, 8-13, 15, 16, and 18-20 stand rejected under 35 U.S.C. § 103(a) for obviousness over Yasukawa in view of Schoolman and Mann. Answer 4, para. 2.

Claims 4, 21, and 22 stand rejected under § 103(a) for obviousness over Yasukawa in view of Schoolman, Mann, and Barkan. *Id.* at 12, para. 6.

³ Because the availability of the references as prior art against Appellant’s claims is not at issue, only the issue or publication dates are being provided.

⁴ A rejection of claims 1-22 under 35 U.S.C. § 112, first paragraph (Final Action 2) was withdrawn at page 2 of the Advisory Action mailed October 22, 2007.

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Claim 7 stands rejected under § 103(a) for obviousness over Yasukawa in view of Schoolman, Mann, and Preston. *Id.* at 10, para. 3.

Claim 14 stands rejected under § 103(a) for obviousness over Yasukawa in view of Schoolman, Mann, and Hori. *Id.* at 11, para. 4.

Claim 17 stands rejected under § 103(a) for obviousness over Yasukawa in view of Schoolman, Mann, and Kato. *Id.* at 11, para. 5.

ANALYSIS

A. *Independent claims 1 and 18*

The principal issue before us is the meaning of the claim term “projection unit,” recited in both independent claims.

Application claims are interpreted as broadly as is reasonable and consistent with the specification, *In re Thrift*, 298 F.3d 1357, 1364 (Fed. Cir. 2002), while “taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant's specification,” *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997), and without reading limitations from examples given in the specification into the claims, *In re Zletz*, 893 F.2d 319, 321-22 (Fed. Cir. 1989).

Yasukawa’s Figure 1 is reproduced below.

FIG. 1

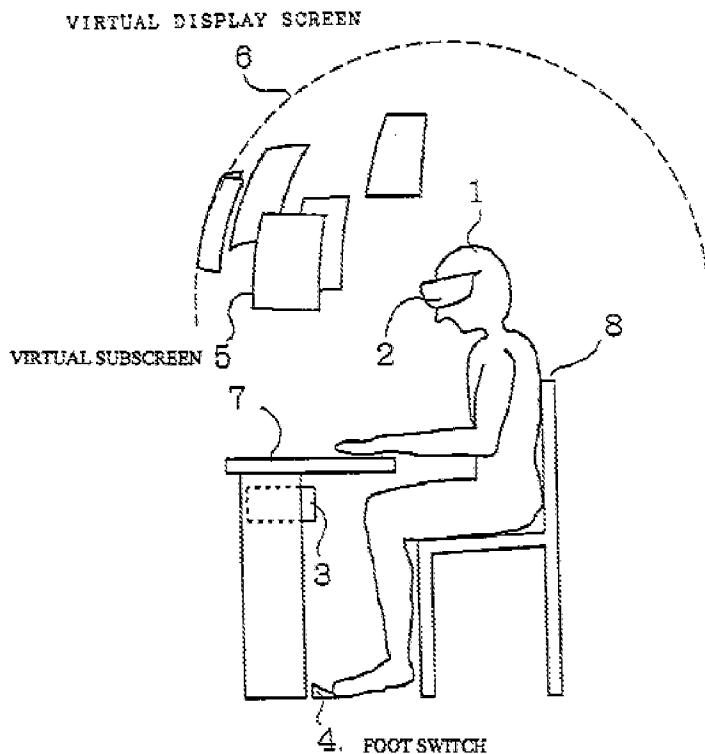


Figure 1 shows a head-mounted image display device according to one embodiment of Yasukawa's invention. *Id.* at col. 9, ll. 7-8. When looking somewhat upward, the operator 1 can view a display screen on the liquid crystal panel 102 as a virtual subscreen 5 on a virtual display screen 6 at a distance about 0.5 meter to 1.0 meter apart from the operator, and when looking somewhat downward, he or she can see an operation on the desk 7. *Id.* at col. 11, ll. 47-52.

Figure 2 is reproduced below.

FIG. 2

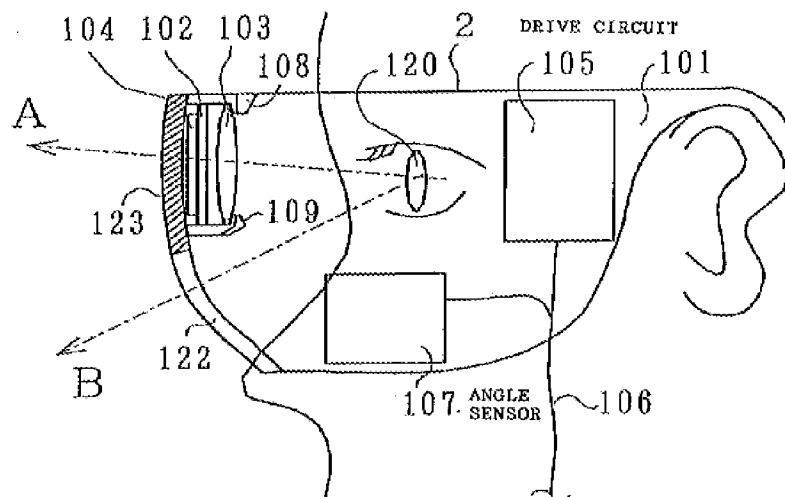


Figure 2 is a block diagram showing the details of Yasukawa's display device. *Id.* at col. 9, ll. 9-10. The display device 2 has a spectacles-like frame 101 having mounted therein a liquid crystal panel 102 comprising a lateral pair of liquid crystal display devices, a back light 104 that illuminates the liquid crystal panel 102 rearways, and an enlarging lens 103 is disposed on the inner surface of the frame 101 between the liquid crystal panel 102 and the operator's eyes 120. *Id.* at col. 11, ll. 10-16. Image display information sent from the computer 3 (Fig. 1) via the connection cord 106 is decoded by the drive circuit 105 and displayed on the liquid crystal panel 102. *Id.* at col. 11, ll. 16-18. The lower part 122 of the front surface of the frame 101 has a high transmittance within the range of about 70 to about 95% so that when looking somewhat downward, as shown by arrow B, the operator can look near his or her hands. *Id.* at col. 11, ll. 30-35.

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The Examiner relies on Schoolman for a teaching of providing the lower part 122 of the front surface of Yasukawa's head-mounted display device with corrective lenses (corresponding to the recited first and second lenses) and relies on Mann for a teaching of using a head-mounted display device to display video from a television receiver. Final Action 4.

Appellant argues that the references fail to disclose the “projection unit” recited in independent claims 1 and 18, which Appellant contends refers to “a single device that projects/displays an image *outside* of itself (for example, on a wall (see page 3, line 26, of the specification))” (Br. 4) (emphasis added). As support for this interpretation of “projection unit,” Appellant (*id.*) cites the results of GoogleTM searches for definitions of “projection” and “unit” on Internet (addressed *infra*). Evid. App. (Br. 11-12).⁵ According to Appellant, the Yasukawa, Schoolman, and Mann references fail to satisfy this definition of “projection device” because in those references “any device worn by the user includes a physical display component for the user to see an image that is within the physical display component, which is contrary to a ‘Projection Unit.’” (*Id.*).

Appellant’s argument is unpersuasive for the following reasons. In defining the claimed “projection device” to be “a single device that projects/displays an image *outside* of itself (for example, on a wall (see page 3, line 26, of the specification))” (Br. 4) (emphasis added), Appellant is

⁵ The definitions were initially submitted with the October 5, 2007, Amendment after Final.

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improperly reading limitations from the detailed description into the claim. Assuming for the sake of argument that the term “virtual screen” as used in Appellant’s Application should be understood to mean a tangible screen (e.g., a wall) located outside the data-specs for displaying a real (as opposed to virtual) image, it is improper to read those limitations into the claims. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1323 (Fed. Cir. 2005) (en banc) (“[A]lthough the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments. In particular, we have expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment.”) (citations omitted).

Nor are we persuaded that it is unreasonable to read the recited “projection unit” on apparatus that presents the viewer with a virtual (as opposed to a real) image, as is the case in Yasukawa and Schoolman. In fact, both of those references apply the term “project” to the display of virtual images. Yasukawa’s Figure 20 shows another embodiment of a head-mounted display device in which the image displayed by liquid crystal panel 102 is perceived by the user as a virtual image displayed on a virtual subscreen 5 that appears to be located outside of the head-mounted display device. Yasukawa employs the term “project” in the following sentence describing a variation of the Figure 20 embodiment: “In another aspect, disposing a beam splitter between the liquid crystal panel 102 and the

reflection mirror 135 [sic: 170⁶] to project an image in two different directions enables the image to reach both eyes of the user via the reflection mirror and the enlarging lens located in front of the respective eyes.” Yasukawa, col. 18, ll. 21-25 (emphasis added).

Furthermore, Schoolman expressly characterizes virtual images as projected images. Schoolman discloses a head-mounted display (Schoolman, col. 1, ll. 22-24). Schoolman’s Figure 7 is reproduced below.

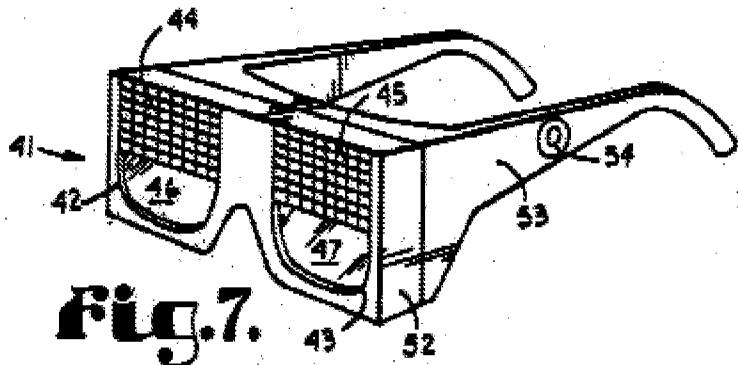


Figure 7 depicts an embodiment of Schoolman’s head-mounted display. *Id.* at col. 5, ll. 64-65. The display 41 is partially transparent and resembles in appearance a pair of bifocal lenses 42 and 43. *Id.* at col. 5, ll. 65-68. The lenses 42 and 43, respectively, comprise upper LCD display screen portions 44 and 45 and lower transparent lens portions 46 and 47, with the display screen portions 44 and 45 being illustrated with the matrices

⁶ Numeral 135 designates the corresponding half-mirror employed in the Figure 10 embodiment. Yasukawa, col. 15, ll. 15-18 (incorrectly referring to in line 15 to “FIG.” rather than “FIG. 10”).

of control electrodes 51 visible simply to distinguish them from the lens portions 46 and 47. *Id.* at col. 5, l. 68 – col. 6, l. 6.

Figure 8 is reproduced below.

Fig.8.

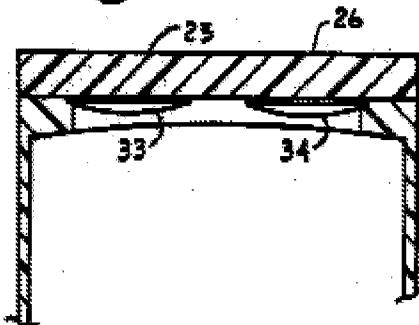


Figure 8 illustrates a top plan view of the head mounted display embodiments 21 and 41 of Figures 2-8. *Id.* at col. 6, ll. 14-15. The LCD display screens 25 and 26 (44 and 45 in the Figure 7 embodiment) are placed within the focal length of the convex lenses 33 and 34, respectively. *Id.* at col. 6, ll. 16-18. Schoolman explains that “[t]he convex lenses 33 and 34 . . . project a virtual image of the information displayed on the display screens 25 and 26 at the user’s distance of distinct vision, approximately 40 cm.” *Id.* at col. 6, ll. 20-24 (emphasis added).

Appellant has not addressed Yasukawa’s and Schoolman’s usage of “project” in describing the virtual images, let alone shown that a person skilled in the art would have considered such usage to be inconsistent with Appellant’s disclosure and therefore unreasonably broad as applied to Appellant’s claims. Nor are we persuaded otherwise by the results of Appellant’s GoogleTM search for definitions of “projection” and “unit,”

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including, *inter alia*, the following definitions of “projection” from <http://wordnet.princeton.edu/perl/webwn>: (1) “the projection of an image from a film onto a screen”; and (2) “protrusion: the act of projecting out from something.” As explained in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1318 (Fed. Cir. 2005):

Because dictionaries, and especially technical dictionaries, endeavor to collect the accepted meanings of terms used in various fields of science and technology, those resources have been properly recognized as among the many tools that can assist the court in determining the meaning of particular terminology to those of skill in the art of the invention.

We are not persuaded that the definitions cited by Appellant provide a better indication of the broadest reasonable interpretation of the claim term “projection unit” in the relevant art than do Yasukawa and Schoolman, which are part of the relevant art and apply the term “project” to the display of virtual images.

For the above reasons, we agree with the Examiner that the recited “projection unit” is broad enough to read on Yasukawa’s (and Schoolman’s) apparatus for displaying virtual images.

At page 2 of the Reply Brief, Appellant additionally argues that “in section 10 of the Answer, the Examiner makes a general statement about Yasukawa’s device being capable of displaying data from an information source. This suggests that Yasukawa’s device is application-independent.” This argument, which appears to be referring to the Examiner’s characterization of Yasukawa’s projection unit as “adapted to display data

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received from an information source (3)” (Answer 14), is entitled to no consideration because that characterization was not presented for the first time in the Answer -- it also appears at page 3 of the Final Action. *Optivus Technology, Inc. v. Ion Beam Applications S.A.*, 469 F.3d 978, 989 (Fed. Cir. 2006) (argument raised for the first time in the reply brief that could have been raised in the opening brief is waived); *accord, Ex parte Scholl*, No. 2007-3653, slip op. at 18 n.13 (BPAI March 13, 2008) (designated as “Informative Opinion”), <http://www.uspto.gov/web/offices/dcom/bpai/its/fd073653.pdf>.

For the foregoing reasons, the rejection of claims 1 and 18 is affirmed.

B. Dependent claims 4-17, 19, and 20

For the above reasons, we are also affirming the rejections of dependent claims 4-17, 19, and 20, whose merits are not separately argued. *In re Nielson*, 816 F.2d 1567, 1572 (Fed. Cir. 1987).

C. Dependent claims 21 and 22

Claims 21 and 22 depend on claim 1 through claim 4, which reads as follows and the rejection of which has been affirmed.

4. The data-specs of claim 1 further comprising a motion sensor and a controller, the controller is adapted to receive an input from the motion sensor and to responsively disable or enable a receiver of the projection unit.

Claims App. (Br. 8).

Claims 21 and 22 read as follows:

21. The data-specs of claim 4 wherein the controller is

adapted to provide a shutdown control signal to the receiver when motion detected by the motion sensor is found to be above a predetermined threshold.

22. The data-specs of claim 4 wherein the controller is adapted to provide a startup control signal to the receiver when motion detected by the motion sensor is found to be below a predetermined threshold.

Claims App. (Br. 10).

Claims 21 and 22, like claim 4, stand rejected for obviousness over Yasukawa in view of Schoolman, Mann, and Barkan.

Barkan discloses devices for reading optically encoded information of varying densities, for example bar codes. Barkan, col. 1, ll. 18-20. The Examiner relies on Figure 5C of Barkan, reproduced below.

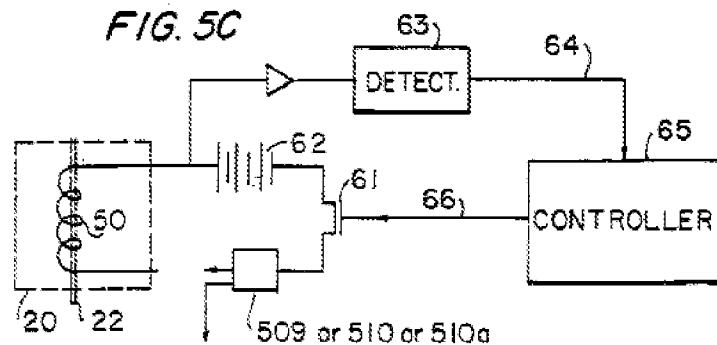


Figure 5C is a circuit diagram, in schematic form, of a motion detection circuit which may be utilized in the integrated data terminals of Figures 2A-2B and 2D, 3A-3B, and 4A-4B. *Id.* at col. 7, ll. 3-6. In response to the motion detection circuit 63, the controller causes the terminal, or selected components within the terminal, to be automatically turned on or off. *Id.* at col. 11, 11-13. Thus, the terminal can be designed such that it automatically

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turns off when laid down on, for example, a counter or table top and automatically turns on when subsequently picked up. *Id.* at col. 11, ll. 13-20. The Examiner concluded that it would have been obvious to add this teaching of Barkan to the combination of Yasukawa, Schoolman, and Mann “since the operation to turn on/off the display device of the projection unit could be used automatically to achieve the predictable result of saving power for the system.” Final Action 11-12. We agree with Appellant that the result of combining the reference teachings in this manner is contrary to claims 21 and 22, which call for providing a *shutdown* control signal when the detected motion is *above* a predetermined threshold and proving a *startup* control signal when the detected motion is *below* a predetermined threshold (e.g., no motion). (Br. 6.) *See also* Reply Br. 3 (“[T]he inventions of claim[s] 21 and 22 have nothing to do with saving power and therefore include elements that are the *opposite* of what Barkan teaches.”) (emphasis added). The Answer fails to address the merits of this argument, instead merely reiterating, at page 15, the above “saving power” rationale.

Because the Examiner’s proposed combination of reference teachings fails to satisfy the limitations of claims 21 and 22, we are reversing the rejection of those claims.

DECISION

The rejections of claims 1 and 4-20 under 35 U.S.C. § 103(a) are affirmed, whereas the rejection of claims 21 and 22 under § 103(a) is

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reversed. Accordingly, the Examiner's decision that claims 1 and 4-22 are unpatentable over the prior art is affirmed-in-part.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1). *See* 37 C.F.R. § 1.136(a)(1)(v) (2009).

AFFIRMED-IN-PART

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